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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,767	10/23/2003	Otward M. Mueller	OTWA-5	6715
7590	03/22/2006		EXAMINER CAVALLARI, DANIEL J	
Leonard Cooper 999 Grant Avenue Pelham Manor, NY 10803			ART UNIT 2836	PAPER NUMBER

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/691,767

Applicant(s)

MUELLER ET AL.

Examiner

Daniel J. Cavallari

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawing are objected to for the following informalities:

- The drawings are objected to because Figure 4 is illegible and appears hand drawn.
- The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Reference number (24) is not present in Figure 2 as expected (See Specification, Page 5).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 1-14 are objected to because of the following informalities:

Claim 1-14 contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification fails to disclose the “cross-section area” of any of the components nor discloses the relationship between the cross-section area of a component in relationship with any other components in the system.

Claims 1 & 12 are objected to because of the following informalities:

The claims recite the limitation of “selectively and reversibly connecting...” It is unclear how an electrical connection can be “reversibly” connected. The claims will be examined as best understood to mean “...selectively connected...”.

Claim 7 is further objected to because of the following informalities:

The claim recites the limitation of an “...electrical conductor fixedly connected...”. It is unclear what is meant by the term “fixedly”. The claim will be examined as best understood to mean “...electrical conductor connected...”.

Claim 8 is further objected to because of the following informalities:

The use of parentheses is not permitted in a claim as it is unclear whether the limitation provided within the parentheses is intended to be part of the claim. The claim will be examined without including the limitations provided within the parentheses.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

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In the present instance, claim 1 recites "...n first leads..." and "...n parallel second leads..." however then recites in claim 3 the broad recitation "...one first lead..." and "...one second lead...", which is the narrower statement of the range/limitation.

The claim will be examined under the broadest interpretation to mean "n" leads.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation of "... reversibly connecting..." is unclear. It is unclear what constitutes a reversible connection of an electrical component and it is failed to be explained in the specification.

Because of the 112 problems with this claim, no art can be applied.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Roy et al. (US 4,906,861).

Roy et al. (hereinafter referred to as Roy) teaches:

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In regard to Claims 1 & 10-14

- A first bus at a lower temperature (See Figure 1, "cryogenic fluid" area connected to inductor 14)
- A second bus (22) at a higher temperature (See Figure 1)
- $n=0$ parallel first leads & $n=0$ parallel second leads
- A controllable interface unit (16, 10)

In regard to Claim 2

- The sum of the cross-section area of said n first leads (0) is approximately equal to A , the cross-section area of the first bus (22) (See Figure 1).

In regard to Claim 3

- The interface (16, 10) including a solenoid (10) connected to 0 leads (See Figure 1)

In regard to Claim 7

Roy teaches a main electrical conductor (24) connected between the first bus and the second bus (22) and a cross-section for the current flow through the main conductor. Roy fails to teach explicitly teach the diameter relationship of the conductors.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a main conductor with a diameter (cross-sectional area)

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less than the first conductor since it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to provide a mere change in size.

In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955)

The motivation would have been to provide a conductor with a large enough cross-sectional area to carry the current for that portion of the device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 & 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al. & Zimmer (US 3,643,185).

Incorporating all arguments above of the electrical connection system taught by Roy, Roy teaches the use of a switch (10) in the form of a relay (See Figure 1) but fails to teach the use of a liquid switch.

Zimmer teaches the use of a liquid switch, read on by a mercury-wetted contact type relay (See Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the liquid switch taught by Zimmer in place of the relay taught by Roy. The motivation would have been to take advantage of

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the liquid switch benefits of a longer operating-cycle and freedom from contact bounce (See Abstract).

Roy further teaches:

In regard to Claim 8

- Wherein said lower temperature is cryogenic (See Figure 1) and the first conductor is thermally insulated via an insulated container (See Column 3, Lines 16-27).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al. & Van Devender et al. (US 4,598,338).

Incorporating all arguments above of the electrical connection system taught by Roy, Roy teaches the use of an interface (16, 10) (See Figure 1) but fails to teach the interface located in a vacuum and insulated container.

Van Devender et al. teaches a switch located within a vacuum and insulated container (See Column 9, Lines 28-43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the interface of Roy with the teachings of Van Devender wherein a vacuum and insulated container is used. The motivation would have been to prevent an electrical breakdown (See Van Devender et al., Column 9, Lines 28-43).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Mendeleev (5,309,980) teaches a device for heat supply y conductive heat transfer.
- Yasue (4,856,297) teaches a transfer vessel device incorporating vacuum compartments.
- Morita et al. (JP 2000294068) teaches a superconductive current limiting device.
- Yamaguchi et al. (US 5,802,855) teaches a power lead for connecting a superconductive coil to a power supply.
- Herd et al. (US 5,396,206) teaches a superconductive lead assembly for a cryocoller-cooled superconductor.
- Pham (US 5,250,508) teaches a superconductor current-limiting device.
- Dederer et al. (US 5,166,776) teaches a hybrid vapor cooled power lead for cryostat.
- Ohara et al. (JP 2000243618) teaches a superconductor apparatus with two superconducting coils.
- Kubo et al. (US 5,218,505) teaches a superconductive coil.
- Hara et al. (US 5,414,586) teaches a superconductive current limiting device.
- Yamaguchi et al. (US 5,884,485) teaches a power lead for electrically connecting a superconductive coil to a power supply.
- Morris et al. (US 5,353,000) teaches a power bus for superconductive loads.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Cavallari whose telephone number is (571)272-8541. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571)272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Cavallari

March 13, 2006



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